

OSTEOMYELITIS

*** Definition :** inflammation of bone & bone marrow "ostitis = bone alone"

*** Types ::** ① Acute: suppurative or nonsupp.
② Chronic: specific (as TB) or non specific.

ACUTE OSTEOMYELITIS

*** Aetiology :-** "route of infection"

- Blood born :- most common route, caused mainly by Staph. aureus or some times by streptococcus or pneumococcus.
- Direct through wound of open fracture (less common).

*** Predisposing factors :-**

- [It is common in children < 10 years, boys, Poor classes. and less common in adult (in immunocompromised).]
- ① Septic focus : as tonsillitis, otitis media → blood spread.
- ② Trauma : mild traum → haematoma → infection.
- ③ Lower general resistance : e.g malnutrition & low immunity.

*** Pathology :-**

- Infection starts in metaphysis of long bones [Site of stasis of blood vessels as it branches in metaphysis].

- Pathology is divided into 5 stages:-

• **STAGE I :-** (inflammatory reaction):

- characterized by hyperemia → oedema & exudates → ↑ intra-osseous pressure → acute pain [with ↑ WBC].

• **STAGE II :-** (Pus formation):

- Abscess if formed inside metaphysis which later escape through cloaca "canal" under periosteum → subperiosteal abscess which later escape to skin → sinus formation which is more characteristic of chronic than acute.

VISIT...

LANZAROTE
Caliente.COM

● STAGE III: "sequestrum formation"

- sequestrum is dead bone, due to thrombosis of blood vessels inside the bone (due to ↑ intraosseous pressure) → ischaemia & necrosis → separated bone fragments (sequestrum).

● STAGE IV: "involucrum formation"

- by the end of 2nd week there is new bone formation from elevated periosteum (involucrum = new bone)

● STAGE V: "proliferative stage"

- stage of resolution & healing by fibrosis, with sufficient treatment, the infection may be aborted. even in early stages, but if neglected → chronicity with destruction & irregularity.

- N.B.: the neighbouring joint is not infected because of presence of epiphyseal cartilage (barrier), but in infant not well developed & not present in adult so may spread infection to joint → pyogenic arthritis
- N.B.: the neighbouring joint may swell with effusion of clear fluid "sympathetic effusion"
- N.B.: if metaphysis is inside the joint (as in hip), the joint becomes infected (acute pyogenic arthritis).

- N.B.: osteomyelitis caused by compound fracture may affect any part of bone & pus usually discharge through primary wound & infection often becomes chronic.

* Clinical Picture :-

- General :- fever (39-40°C), Anorexia (refuse feeding), headache, and malaise.
- Local :- sudden severe pain (Localized tenderness), ↑ with moving the limb, hotness, redness, swelling & Loss of function with tenderness ± symp. effusion of joint.
 - Pus may discharge through sinus.
- s/s of complication as pathological fracture.

* Investigation :-

- General :- CBC [$\uparrow$ WBC mainly neutrophilia, ~~ESR~~, $\downarrow$ Hg anemia of infection]
- ESR $\uparrow$, Blood culture & sensitivity, $\uparrow$ C-reactive ptn.
- Local :- X-ray :- (usually no changes in 1st to days — 2 wks)
- early rarefaction, then abscess shadow, periosteal elevation, sequestrum appears as dense bone & involucrum "new bone".
- x-ray may show pathological fracture.
- Pus culture & sensitivity
- Isotope scanning by using e.g. Tc^{99} with Gamma camera which shows infection as hotspot.

* Management :-

- General :- good hydration, admission, rest of bone.
- Analgesia, Antipyretic. eg by splint.
- Antibiotic :- I.V antibiotic for 6 wks [2-3 wks given I.V then orally]. Broad spectrum as Ampiclox, fusidin (concentrated in bone), augmentin... etc
(follow up by ESR & C-reactive protein daily)
- Local :- if pt not improved within 36 hr either improper antibiotic (so change according to culture/sensitivity) or pus if formed (so do drainage) by removing subperiosteal pus ^{abscess inside} with one or two drill holes in cortex to improve drainage then stitch with drain.

* Complication :-

- General :- septicemia, pyaemia & spread of infection.
- Local :- - chronic osteomyelitis.
- Acute pyogenic (septic) arthritis.
- Pathological fracture.
- Deformity & shortening.

NB Brodie's abscess is chronic metaphyseal abscess, starts insiduously. caused by staph but with low virulence & pt good resistance.

- Pathology :- central cavity contains jelly-like tissue surrounded by bone sclerosis $\pm$ sequestrum inside it.
- C/P :- slight pain + swelling $\pm$ Pathological *
- treated by sauceration "removing" abscess.

* Differential diagnosis :-

- ① Acute septic (Pyogenic arthritis) :-
 - Tenderness over joint, with absolute limitation of movement
 - Aspiration reveals pus.
- ② Cellulitis or deep abscess :-
 - less toxemia & pain, normal movement & pressure on bone away from site of inflammation → no pain.
- ③ Rheumatoid arthritis - (Juvenile Rh.)
 - Diffuse tenderness, hotness, no redness, $\pm$ Rh. factor.
- ④ sickle cell crisis :-
 - (severe pain due to ischemia of bone by sickle RBC)
 - (organism usually salmonella.

CHRONIC OSTEOM.

* Aetiology :-

- 1- following acute osteomyelitis [unproper management, high bacteria virulence, resistance, low immunity of pt or persistence of septic focus].
- 2- following compound fracture.

* Clinical Picture :-

- Continued sinus discharge of Pus. [Painless, No fever, Not tender]
- Acute exacerbations from time to time.
- Presented by complication as Pathological $\times$, malignancy.

* Investigation :-

- X-ray :- abnormal bone texture with thickening.
 - single or multiple cavity $\bar{=}$ sequestrum & involucrum.
- Culture of Pus with antibiotic sensitivity.

* Treatment :-

- Acute exacerbations treated as acute osteomyelitis.
- Remove sequestrum (sequestrectomy & saucerization) with debridement until bone bleeds.
- wound left open to heal by secondary intention (granulation) then close $\pm$ bone graft $\pm$ skin graft.